On Bailique and Brigue I found the forests very different from any I had hitherto seen in the tropics. These islands, like all the others in this part of the country, are flooded at high tide during part of the year; and, as a consequence, they are very like great banks of mud covered with the rankest kind of vegetation. This vegetation varies with the locality. All around the borders, Brigue is fringed with tall assai palms, bamboos, and various kinds of tall trees, all of which are hung with a dense drapery of sipós (lianes) and vines, which form an almost impenetrable covering. Inside of this are several palms, the most common being the ubussú (Manicaria saccifera). The next in order are the murumurú (Astrocaryum murumurú), urucurý (Attelea excelsa, the nut of which is used for smoking rubber), and ubim (Geonoma). But, unlike most tropical forests, this one has very little or no undergrowth, except upon the borders. Most of the ground was under from one to six inches of water, while the exposed places were covered with fine sediment deposited by the standing muddy waters of the Amazon. I walked several miles through this forest without finding any palms except the ones mentioned. The little ground above water was covered with the tracks of deer, pácas, cutías, and of many kinds of birds, mostly waders; but the deathlike stillness was unbroken, save for the little crabs that climbed vacantly about the fallen palm-leaves, or fished idly in the mud for a living.

This vast expanse of muddy water, bearing out into the ocean immense quantities of sediment; the *pororóca*, breaking so violently on the shores, and carrying away the coarser material to the open sea, and burying uprooted forests beneath newly formed land; the rank vegetation of islands and *varzea* rapidly growing and as rapidly decaying in this most humid of climates; the whole country, submerged for a considerable part of the year by the floods of the Amazon, — impress one with the probability of such phenomena having been in past ages, and still being, geological agents worthy of study and consideration. Across the mouth of the Amazon, a distance of two hundred miles, and for four hundred miles out at sea, and swept northward by ocean-currents, beds of sandstone and shale are being rapidly deposited from material, some of which is transported all the way from the Andes, while in many places dense tropical forests are being slowly buried beneath the fine sediment thrown down by the muddy waters of the great river.

John C. Branner.

Geological survey of Pennsylvania, Scranton, Penn.

HISTORY OF ALMANACS.

The derivation of our English word 'almanac' seems doubtful. The word possibly came from *almonaght*, Saxon words meaning 'the observation of all the moons.' In Roman times the priests announced once a month to the people what days should be observed as holidays, basing their calculation upon the movements of the moon. In this way almanacs arose to give information of church feasts. Then superstition entered, and caused an interest to be taken in the movements of the planets. As the earth was held to be the centre around which moved the moon, the planets, and the stars, and as the moon was seen to have an influence upon the tides, the inference was drawn that human affairs could but be affected by these outside bodies which were supposed to have been created for the benefit of the world alone.

The earliest calendars known were cut upon rods of wood or metal, some of the Roman calendars on blocks of stone. The earliest written almanacs were of two classes, — the first containing astronomical computations; and the other, lists of saints' days, and other matters pertaining to the church. Both are sometimes found united; although the latter claimed greater antiquity, being prefixed to most ancient Latin manuscripts of the Scriptures. We reproduce from the 'Glossaire archéologique' of Victor Gay a church calendar of the fourteenth century, in which the leaves are made of box-wood, the pages reproduced giving the calendars of January and December. The first printed calendar was issued in 1472, by Johannes de Monte-Regio; and before the end of that century they became common on the continent. In England they were not in general use until the middle of the sixteenth century; and the making of calendars interested the best mathematicians of the time, which was not the case a little later.

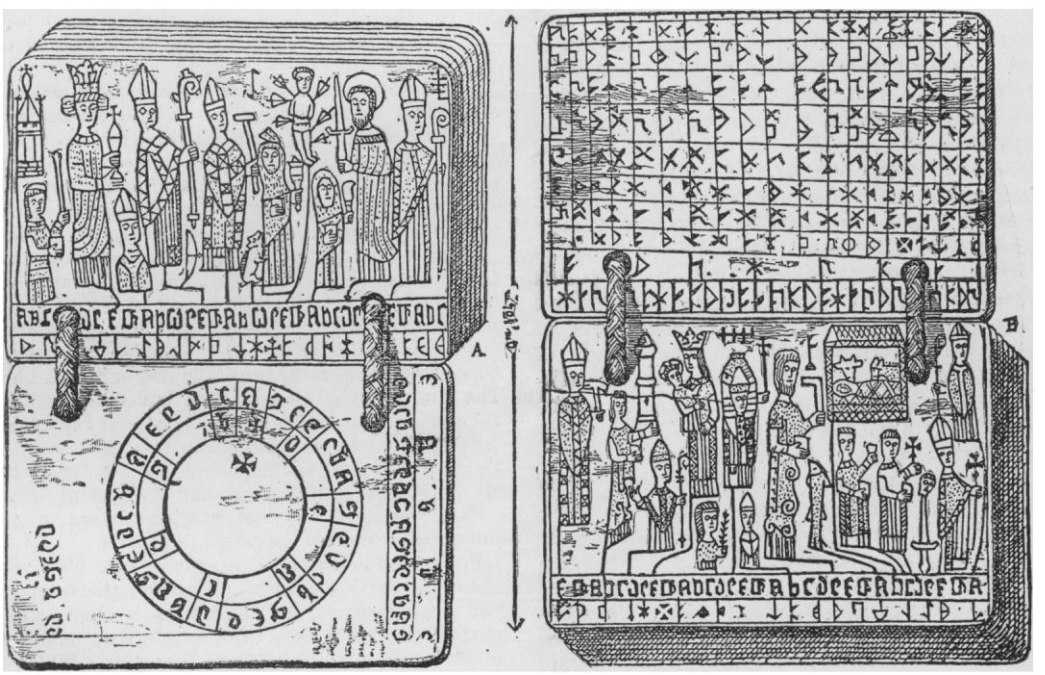
From the earliest times, calendars were filled with advice to physicians and the farmer: the farmer is told when to plant, and the sick man when to take physic. We quote here from an almanac published in 1628, in London, by Daniel Brown, — "Willer to the Mathematickes, and teacher of Arithmeticke, and Geometry," — the titlepage of which bears the inscription, 'Astra regunt homines et regit astra deus,' the paragraphs on

"*Judiciall Astronomy.*

"It hath beene an order and a custome (amongst the most excellentest and wisest Physitions, to choose the Moone for the principall. Significatrix of the sicke Person, and according unto her motion, situation, and configuration (with other Planets) haue giuen judgement on the increasing, mittigation and alteration of the disease; which of the Physition is called Crisis, that is a swift and vehement motion of a disease, either to life or death, and it hapneth about the supreame intention of a disease. And Galen (in commento de diebus Criticis) sayth. A Physition must take heed and advise himselfe of a certaine thing that faileth not neither deceiveth,

which the Astronomers of Egypt taught) that is to say when the body of the Moone is joyned with fortunate Plannets and Starres, dreadfull and fearefull sicknesse commeth to good end. And therefore the expert in that excellent science of Physicke, doth obserue and marke how the Moone passeth through the Zodiacke; and with what Planets she is joyned; thereof they do vnderstand much of the alteration of the sicknesses, for the Moone with the good Planets, as Iupiter and Venus, or aspected well of them tendeth to good. Contrarywise with the euill Planets as Saturne and Mars, or euill aspected of them, doth pronounce and cause euill essence of the sickenesse, in so muth that such dayes in euery moneth is to be accounted more dangerous then the rest to fall sick causeth the mutability and alteration of mens bodies, to bee good or euil, according to the nature of that Planet with whom she is adjoyned, which agreeth to the saying of Ptololeus in the 16. Aphorisme of his Centi loquio. Behold the motion of the Moone as she passeth through the Criticall, Judicial and mortall dayes, for if she be in them fortunate, it will fall out well: if Unfortunate, the contrary. And by the censure of the great. Astrologicall and Theologicall Doctor Frauncis Iunctinus, that by the motion of the Moone and Planets are knowne the Criticall and dangerous dayes, when the sicknesse will bee more remisse and placable. And when it is convenient to vse outward, or inward medicines.

"Concerning cautions in ministration in Physicke,



A CHURCH CALENDAR OF THE FOURTEENTH CENTURY.

in. Which dayes I have noted in my Almanacke, with their Characters, under the Aspects of Luna to Saturne and Mars. Thus a ☌ Conjunction, this a □ Quartile, this a ☍ Opposition: For example, The 5. day of Aprill, the ☌ of Saturne and Luna the Moone, being in Virgo of ♄ afflicted, the griefe shall proceede of viscuous and tough fleame. The thirteenth of Aprill the ☍ of Mars and Luna, the Moone being in ♑ of ♂. afflicted, the griefe is of blood and red choller. For Astrologers say, that among all the other Planets the Moone (in ruling) hath most power and mastry of mens bodies. Ptolomeus saith, under the moone is contained sicknesse, therefore about the alteration of mans body, the Moone worketh principaly; and because her orbe is neerest to the earth, sendeth vs the vertue and impression of the other Planets; and as purgations, laxatiue, or phlebotomie, seeing the fore sight, and preuention of such especially appertaineth to the learned in Physicke, wherein they can helpe themselues, and others, God giuing a blessing to their practise, for of the most high commeth healing. I commit them to the consideration of the learned, in that excellent Science of Physicke and Chyrurgery."

Prognostications of the weather were also called for by the readers of almanacs; and the following rules, quoted from a manuscript in Lambeth palace, as given by Mr. Halliwell-Phillips, may be of service to those whose faith in the moon is still strong, and who may wish "to knowe what wether shall be all the yere after the chaunge of every moone by prime dayes."

"Sondaye pryme, drye wether.
Mondaye pryme, moyst wether.
Teusdaye pryme, cold and wynde.
Wenesdaye pryme, mervelous.
Thursdaye pryme, Sonne and clere.
Frydaye pryme, fayre and fowle.
Saturdaye pryme, rayne."

of the almanac are those who thumb them over with the expectation of finding similar guidance. When criticised, they reply that it is just as well to be on the safe side.

One of the earliest American almanacs, which also served as an altar upon which to offer human sacrifices, and which has given rise to such lively dis-

THE MEXICAN CALENDAR-STONE.

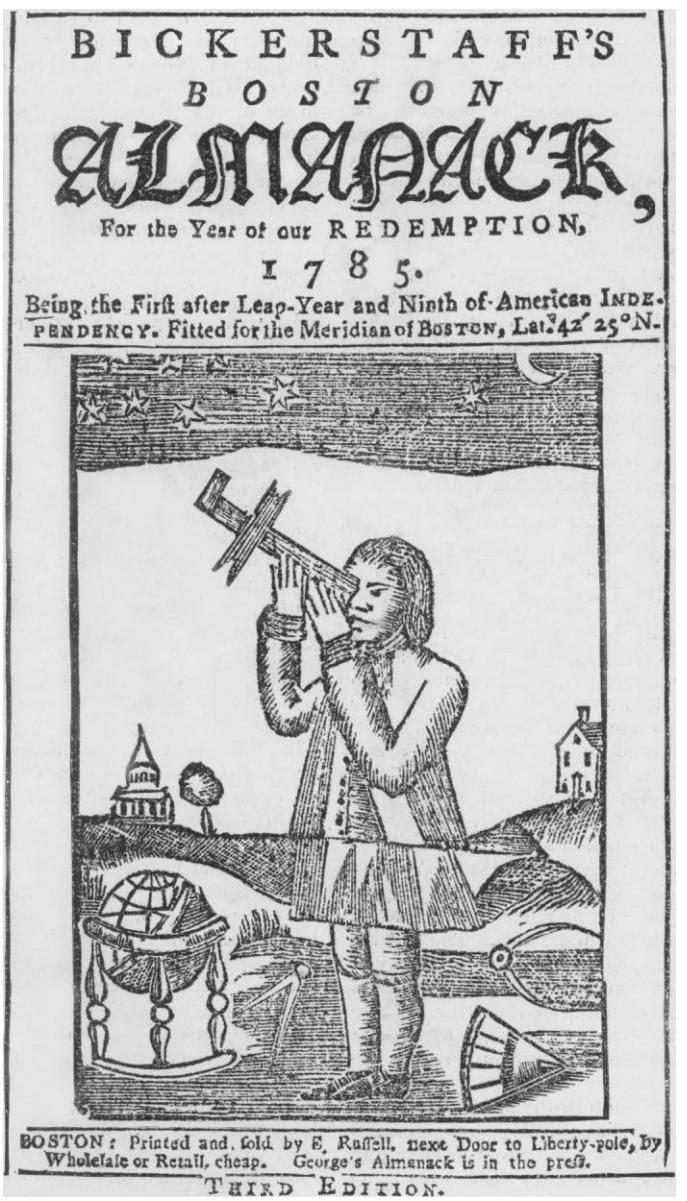
It will be seen that superstition has largely entered in keeping alive the interest in almanacs. The first object in their publication was that men might save their souls by knowing their church days; and the second, that they might sow their seed and take their physic to the best advantage. Of course, all this wisdom of our greatest grandfathers was often scoffed at by the unbelievers; but it will probably be found, that, even at the present day, the most constant users

cussion among the antiquarians, was the Mexican calendar-stone.

The Mexican year was a solar year of three hundred and sixty-five days. Their old calendar consisted of three hundred and sixty days, to which they finally added five. Each day had a name except the added five. The year was divided into two parts, — one of two hundred and sixty days, called *meztli pohualli* or 'moon-reckoning;' and a smaller portion of a hun

dred or a hundred and five days, called *tonal pohualli*. The year was divided into eighteen months of twenty days each: the five extra days were looked upon as outcasts and unlucky days. The week was only five days long. Further, they recognized a cycle of fifty-two years, each of which had a name, and during the last night of any one of which the world might come to an end.

On the Mexican calendar-stone the sun-god is represented in the middle, and surrounding him the symbols of the sixteen hours of the day. The four larger pointers indicate sunrise, mid-day, sunset, and midnight. The subdivisions of eight hours are marked by the smaller pointers, while the sixteen hours are indicated by the small towers at the corresponding distances. In the narrow belt surrounding the central shield are found the symbols for the twenty Mexican months, beginning at the left of the centre at the top, and running round contrary to the hands of a watch. The first is named *Cipac*, for the astronomer who added the five days to the year; the second is called *ehecatl* ('wind'); and the third, *calli* ('house'), showing a Mexican house with flat roof. Surrounding this is a narrow zone of squares, each containing five points divided into four lots of ten squares each, which gives two hundred dots. There are lacking sixty dots to make up the larger subdivision of the year; and it will be noticed that the space for these is exactly occupied by the pointers, the lines across the pointers indicating that the zones are supposed to be continued under them. The other division of the year contains a hundred and five days as represented by the zone of glyphs just outside the zone of dots, and it will be found to contain a hundred. The missing five are seen directly under the sun's face. There only remains the representation of the fifty-two years cycle, and this is found in the outer belt. Every fifty-two years the sacred fire was rekindled, the ceremony beginning with human sacrifices, and ending by the rekindling of the fire by rubbing a stick in a hollow piece of wood. This rekindling is symbolized in each of the figures of the outer belt. The vertical column represents the stick, and the flames are seen rising at either side. The belt just within this outer one symbolizes the destruction of the world by rain, being a rough representation of clouds, with four streams of rain descending from each. The Mexicans had a tradition of four destructions of the earth, — one by war, symbolized by the tiger's head above the sun at the right; another by wind; another by rain; and the fourth by great flood. The four squares around the sun-head are supposed to symbolize these epochs. The antiquarian would


BICKERSTAFF'S
BOSTON
ALMANACK,
For the Year of our REDEMPTION,
1785.
Being the First after Leap-Year and Ninth of American INDEPENDENCY. Fitted for the Meridian of BOSTON, Lat. 42° 25° N.
BOSTON: Printed and Sold by E. Russell, next Door to Liberty-pole, by Wholesale or Retail, cheap. George's Almanack is in the press.
THIRD EDITION.

deduce valuable facts with regard to Mexican history from the stone; but for further details we must refer to the lecture of Dr. Valentini, published by the American antiquarian society.

The first book printed in Cambridge, Mass., was an almanac, that the wise men of New England might not lead unguided lives; but no copy of the book is known to exist. We give, however, the title-page of an almanac published in 1785 in Boston, which shows the maker taking the altitude of a star with a cross-stick, which is nothing more than a cross-piece sliding upon a graduated stick, the observer bringing one end of the cross-piece on a line with his eye and the horizon, and the other end on a line with his eye and the star.

Almanacs contained considerable trashy information up to the early part of this century, when the British almanac and companion were published in 1827. The British almanac aimed to give a reliable calendar, and a vast amount of information which is generally hidden in census reports. It has been followed by Whitaker, giving similar information for the whole world, and by the American almanac, more especially devoted to American affairs. So it will be seen that the almanac first gave rules by which one might know every thing, and ended by telling us every thing we know.

EXPLORATION OF PUTNAM RIVER, ALASKA.

THE Ounalaska (Lieut. G. M. Stoney, U.S.N., commanding) arrived in San Francisco, Oct. 25, having completed the exploration of Putnam River so far as the time allotted would permit. The river was explored by a steam-launch three hundred miles, when rapids were encountered; then a canoe was taken, and towed by hand about eighty miles farther; and from this point a short portage brought a portion of the party to the head waters of one of the northern tributaries, which was fed by two large lakes. A mountain near one of these lakes furnished a view far to the eastward, up the main valley of Putnam River, and showed it flowing in undiminished volume as far as the eye could reach. The natives reported, that seven days' journey farther up the river there was a great lake, looking like a sea; and it is thought that this is the source of the river. There is little doubt that the river has its origin as far east as the British possessions, and probably near to the Mackenzie.

Putnam River empties into Hotham Inlet just north of Selawik Lake and to the south-east of Kunatuk River. There is a large delta at its mouth stretching back about forty miles, which is pierced by over one hundred channels, one of which is about one mile in width. The river is navigable to boats drawing from five to six feet of water, up to the rapids. Here the water flows at about ten knots per hour. The river and most of its tributaries lie within the arctic circle. Most of the tributaries are from the north, and they are generally shallow but rapid-flowing, while the water is very cold; in some instances the observed temperature being 38°, while in one case it was 33°. Only one considerable branch was found flowing from the southward. This is called the Pah River by the natives, and it is used by them in journeying to the south; for a very short portage from its source enables them to reach one of the northern tributaries of the Yukon River, and they are thus brought in easy communication with the trading-posts. It is believed that like easy portage can be made from the Putnam to the river discovered by Lieut. Ray near Point Barrow, and which empties into the Arctic Ocean.

The country about the Putnam is mountainous. Long ranges extend along either side; but they are peculiar in existing in small, detached groups, each of which possesses distinguishing characteristics, some being clearly defined, sharp, rocky peaks, while others are smoothly rounded. The higher ones are estimated at about three thousand feet. From the tops of those which were ascended, the whole country to the north appeared to be a confused mass of mountain peaks, and the natives stated that the country was of the same character to the Arctic Ocean.

The country explored was found to possess a warm and agreeable summer climate, the thermometer having reached 115° in the sun, while the nights were cool. The valley of the Putnam is heavily timbered with spruce, birch, cottonwood, larch, and willow; while flowers were in abundance, roses being seen in large numbers. Cuttings of these latter, together with specimens of coal, gold, and copper, and a huge fossil trunk, form a part of the material collected for the Smithsonian institution.

While Lieut. Stoney was absent, Ensign Purcell remained with two men in charge of the schooner, and made a survey of Hotham Inlet and the Selawik. He found that the Selawik River represented on the charts has no existence; but there is a channel, six miles in length, connecting Selawik Lake with a chain of three lakes to the eastward. He also found a five-fathom channel over the Hotham-inlet bar.

The Ounalaska is a fifty-four ton schooner, and Lieut. Stoney was provided with two officers and a crew of eight men. There were no naturalists with the expedition.

While returning from his expedition, Lieut. Stoney encountered several severe gales. During one of the most severe he employed oil for stilling the waves, with marked success. The oil was rigged upon a spar to which a drag was attached, and the vessel was so manoeuvred that the drag stood off the weather-bow. The vessel holding the oil was so constructed that the oil was forced out in portions by each advancing wave. All the waves were affected by the oil, but the great foaming combers most markedly.

THE BIRD-COLLECTION OF THE U. S. NATIONAL MUSEUM.

IN the register of specimens belonging to the bird department of the National museum, which records